March 2, 1965

Dr. John H. Northrup
Department of Bacteriology
University of California
Berkeley 4, California

Dear Dr. Northrup:

As I see it, the crucial question is whether differential growth can account for increases in the mutant fraction. For example, on page 5 you have M/W going from 10^{-5} to 3×10^{-2} in 5 days. Even if C were zero, wouldn't you get this with, say, A = 5 per day and B = 6.6 per day? I.e., $5(6.6-5) - \ln(3 \times 10^{-2}/10^{-5})$. To account for <u>equilibrium</u> we might have to suppose either secular change in the environment or one imposed by the population shift. On the other hand you must at least suppose a strong contraselection against the mutants to balance the mutation rate.

Have you discussed the kinetics with Don Glaser?

Sincerely yours,

Joshua Lederberg
Professor of Genetics

Northrop, J. H.

P.S. Did you see J. Gen. Microbiol. for December 1964 - Munson & Bridges - on "takeover" by mutants?

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